# An Econometric Study Evaluating the Role of "Office of Patient Experience" on Experiential Outcomes in U.S Hospitals

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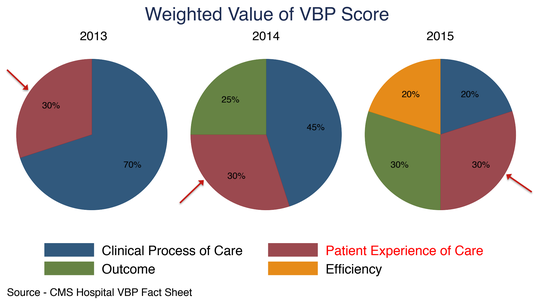
## Introduction

Since the inception of the Patient Protection and Affordable Care Act (PPACA) of 2010, there has been a significant change in the delivery of healthcare. Payment reform was one of the key attributes of the PPACA as the reimbursement model shifted to value based purchasing (VBP) model. In the VBP model, payments are bundled and 30% of the score is comprised of patient experience. Since patient experience has become a vital component of the reimbursement model, hospitals are taking initiatives to improve this patient experience dimension. Hospitals are beginning to incorporate the "Office of Patient Experience" (OPE) as a separate governing entity responsible for improving patient experience.



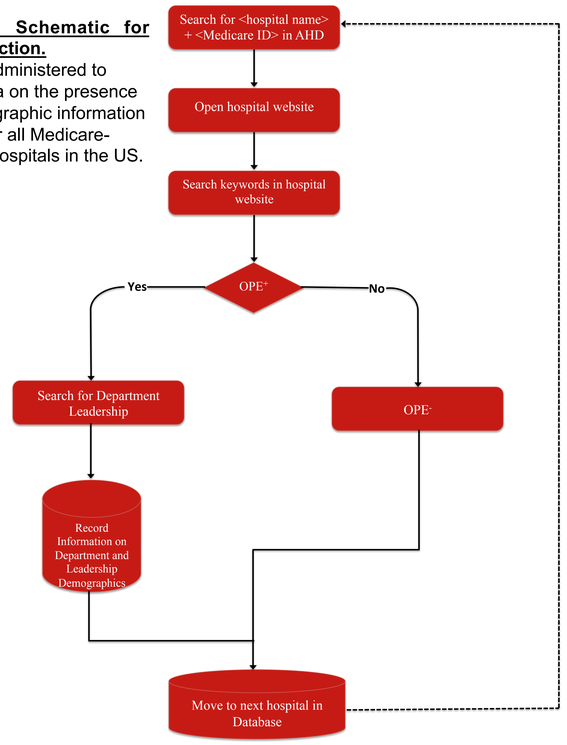

Source - CMS Hospital VBP Fact Sheet

- Patient experience is measured by the Hospital Consumer Assessment of Health Providers and System (HCAHPS) survey
- Beginning in 2013, Centers for Medicare and Medicaid began evaluating HCAHPS survey in determining reimbursements rates for hospitals

**In this observational study, we hope to gain insights on the role of the office of patient experience across all Medicare-qualified hospitals in the United States and their effects on patient experience.**

## Data Extraction

**Figure 1. Schematic for data extraction.** Protocol administered to collect data on the presence and demographic information on OPE for all Medicare-Qualified hospitals in the US.




## Results

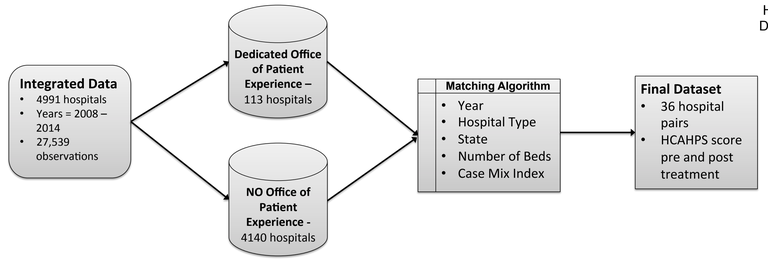
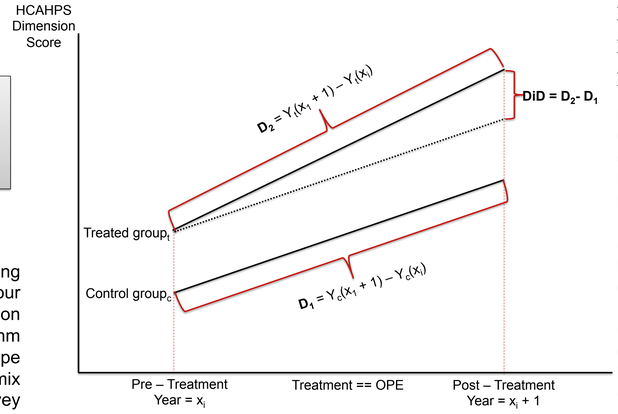



**Figure 3. Algorithm for generating hospital pairs.** We integrated the datasets containing general information on all Medicare-qualified hospitals from Hospital Compare – CMS and our primary data regarding OPE from our extraction efforts. Then, we sorted the data sets based on if hospitals had a dedicated OPE vs. no OPE. Next, we administered out matching algorithm which matched hospitals with OPE vs. hospitals without OPE based on hospital type (Academic, General Medical and Surgical, and Pediatrics), state, number of beds, case mix index (measures the complexity of cases seen by hospitals), and the year for HCAHPS survey conducted. The algorithm resulted in 36 hospital pairs based on the current integrated dataset.

| | *Dependent variable:* | | |
|---|---|---|---|
| | Control D1 (Post-Pre) | Treatment OPE D2 (Post-Pre) | Paired Difference D3 (D2-D1) |
| | (1) | (2) | (3) |
| Overall Rating | 0.0117 | 0.0299 | **0.018**** |
| | (0.0096) | (0.0093) | (0.012) |
| Doc Comm | 0.005 | 0.011 | **0.0059** |
| | (0.004) | (0.005) | (0.007) |
| Nurse Comm | 0.009 | 0.025 | **0.016***** |
| | (0.006) | (0.005) | (0.007) |
| Received Help | 0.011 | 0.030 | **0.019*** |
| | (0.011) | (0.008) | (0.015) |
| Explain Medicine | 0.013 | 0.019 | **0.0006** |
| | (0.013) | (0.006) | (0.014) |
| Pain Management | -0.0014 | 0.017 | **0.019***** |
| | (0.008) | (0.007) | (0.008) |
| Quietness | 0.021 | 0.042 | **0.021*** |
| | (0.008) | (0.016) | (0.015) |
| Cleanness | 0.008 | 0.011 | **0.0032** |
| | (0.006) | (0.008) | (0.011) |
| Hospital Recommend | 0.0014 | 0.027 | **0.026***** |
| | (0.009) | (0.009) | (0.0118) |
| Observations | 36 | 36 | 36 |

*p<0.10 **p<0.05 *** p<0.01

**Figure 5. Paired Student's *t* test results.** Percent change of scores in HCAHPS dimension of Overall Rating of Hospital, Nurse communication, Responsiveness of Hospital Staff, Pain Management, Quietness of Hospital Environment, and Willingness to Recommend Hospital were higher for OPE hospitals and statistically significant.




$$Y_{\%\Delta \text{ in } D_2} = \beta_0 + \beta_1 x_{Bedsize} + \beta_2 x_{Clinician} + \beta_3 x_{Academic} + \varepsilon$$

$$Y_{\%\Delta \text{ in } D_2} = \beta_0 + \beta_1 x_{Bedsize} * \beta_2 x_{Clinician} + \varepsilon$$

$$Y_{\%\Delta \text{ in } D_2} = \beta_0 + \beta_1 x_{Clinician} * \beta_2 x_{Academic} + \varepsilon$$

**Figure 4. Differences-in-Differences (DiD) for OPE vs. non-OPE hospitals and regressions equations for predicted percent change in hospitals with OPE.** DiD estimation methods help avoid omitted variable bias in changes in HCAHPS score by controlling for general time effects enduring by both a OPE and non OPE hospital and the resulting difference is the sole effect of the treatment (having an OPE) on HCAHPS score. The regression equations were used to determine the effects of hospital bed-count, hospital type, and background of OPE leadership on changes in HCAHPS score in OPE hospitals.

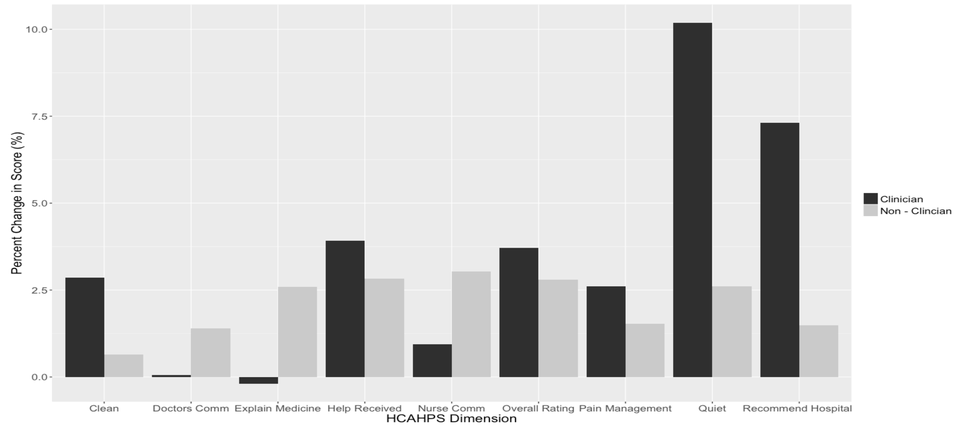



**Figure 6. Percent change in HCAHPS score for clinicians vs. non-clinicians.** To evaluate our secondary research questions of how OPE should be structured, we examined the difference in HCAHPS score between hospital leadership who were clinicians vs. non-clinicians in hospitals with OPE. The dependent variable measured was the percent change in HCAHPS score one year out from the inception of the OPE in a particular hospital.

## Hypothesis

**Figure 2. Conceptual Framework.** The HCAHPS survey is complex and contains 10 dimensions. Each dimension has a particular set of questions and patient responses are aggregated to create a score for each dimension for each hospital. Based on our literature review, and our understanding of how a OPE functions, we developed the following hypotheses for the difference in HCAHPS scores between a hospital with an OPE and a similar hospital without an OPE.

**HCAHPS Survey Breakdown**

**Composite Topics:**
- Nurse Communication
- Doctor Communication
- Responsiveness of Hospital Staff

$H_0 : u_d = 0$, $H_a : u_d > 0$

- Pain Management
- Communication About Medicines
- Discharge Information

**Individual Items:**
- Cleanliness of Hospital Environment
- Quietness of Hospital Environment

**Global Items:**
- Overall Rating of Hospital
- Willingness to Recommend Hospital

$H_0 : u_d = 0$, $H_a : u_d > 0$

## Discussion

- To our knowledge, this is the first research study looking at the effects of having an Office of Patient Experience
- We demonstrated that establishing an Office of Patient Experience (OPE) increases HCAHPS scores higher than the alternative
- Even though the percent increase in HCAHPS score are small, this can equate to millions of dollars in reimbursements from Centers for Medicare and Medicaid under the VBP model
- Preliminary analysis on the structure of OPE regarding leadership of the department demonstrate mixed results for the percent change in HCAHPS score
- Future work includes looking more deeply into the structure of an OPE and perform a cost benefit analysis on having an OPE

**Figure 7. Is this a Hospital or a Hotel?**[1] Source[1]: The New York Times – Sunday Review (2013)